

THE DER WEEKLY

www.eren.doe.gov/der

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August 17, 2001

Industry News

University of CT to Receive Fuel Cell System

The State of Connecticut has awarded FuelCell Energy, Inc. a contract to site a 250 kW Direct FuelCell® power plant at the University of Connecticut. The \$1.25 million contract was awarded through the Connecticut Clean Energy Fund. The power plant is scheduled to be delivered in 2002. Governor Rowland first announced the intent to purchase a Direct FuelCell® power plant in April at the dedication ceremony for FuelCell Energy's new manufacturing facility in Torrington, Connecticut. [See DER Weekly, May 4]

FuelCell Energy Press Release, August 14

Calpine to Buy Siemens Westinghouse Turbines

Calpine Corporation announced on August 9 that it plans to purchase 27 Siemens Westinghouse steam turbine generators. The turbines will be used in North American power generating facilities in combined-cycle applications. Calpine expects the deliveries to start in September 2002 and the project to be completed by February 2005. The 27 units will have the capacity to generate 5,400 MW of electricity.

Calpine Corporation Press Release, August 9; Photo: Siemens Westinghouse Web Site



Siemens Westinghouse Steam Turbine

Record Heat Wave Forces First Use of PJM's Pilot Demand-Side Response

PJM, the largest centrally-dispatched electric control area in North America, covering major portions of the five Mid-Atlantic states, survived an intense heat wave the week of August 6th, partly through its call on distributed generation and energy efficiency participants in PJM's Load Response Pilot Program. The heat wave drove system-wide electricity use to successive all-time records of 54,176 MW on Thursday, August 9th; 53,910 MW on Wednesday, August 8th; and 53,464 MW on Tuesday, August 7th. This exceeded the peak electric demand during the July 1999 heat wave by more than 2,400 MW. The current pilot program was effective June 1, 2001, and will expire on May 31, 2002. A predecessor plan was in place last summer but was never called up. The first use of the pilot program was on July 25th, 2001, and the week of August 6th there were calls on the three indicated days. Actual load response to the recent call will be available within 30 days.

Find out about a new fuel cell/
microturbine plant!
Read Power Crunch,
The DER Weekly Feature on page 2.

EPA Awards Grant to Encourage Fuel Cell Use

The U.S. Environmental Protection Agency (EPA) has awarded a \$10,000 grant to the Houston Advanced Research Center (HARC) to promote the use of fuel cells in an effort to help improve air quality in the Houston area. HARC, a non-profit organization working with universities and medical centers on fuel cell research and development, intends to develop a trading program for fuel cell emissions that will fit into a larger cap and trade program proposed by the Texas Natural Resource Conservation Commission (TNRCC) to address smog in the Houston-Galveston area.

EPA Press Releases, August 15

Forbes Article Focuses on "Micropower" Stocks

An August 13th article on Forbes magazine's website highlights the financial prospects of several companies that produce "micropower" technologies such as microturbines and fuel cells. A table showing eight companies' estimated 2001 sales, projected earnings per share (EPS) growth, and current market value is provided in the article entitled "Stock Focus: Micropower Energy Companies." For example, Capstone Turbines is expected to generate revenue of \$71 million this year and \$167 million next year, and Wall Street analysts speculate that the company could achieve profitability in 2003. Though also not currently profitable, FuelCell Energy is expected to increase its sales from an estimated \$32 million in 2001 to \$98 million in 2002.

Forbes.com, August 13

Environmental News

Free Trees and Rebates Help Cool California

Some utilities in California are offering their customers incentives to plant shade trees to cool their houses naturally. Anaheim Public Utilities have provided free trees and rebates since 1992; customers can get three 15-gallon trees at no cost and additional rebates of up to \$20 for three purchased trees. Riverside and Sacramento also have similar shade tree

(Continued on page 2)

*Cities in Southern California are retrofitting traffic signals with light-emitting diode (LED) lamps made of indium gallium nitride.**

Power Crunch: The DER Weekly Feature

FuelCell Energy Begins Testing of High Efficiency Fuel Cell/Microturbine Plant

On August 16, FuelCell Energy announced that it had commenced operations of a power plant based on a 250 kW Direct FuelCell® integrated with a Capstone Turbine modified Model 330 Microturbine. The first-of-a-kind test of the DFC/T™ power plant began on July 31 and is expected to last several months. The plant is designed to operate in a dual mode: as a standalone fuel cell system or in combination with the microturbine. The combined system does not require any combustion in the turbine. Instead of fuel, heat generated by the fuel cell is used to drive the modified Capstone Microturbine to generate additional electricity. The demonstration will provide information to design a 40 MW DFC/T™ power plant that can reach a 75 percent efficiency goal, as well as serve as a basis for a high efficiency DFC/T™ in smaller sizes for retail power applications.



The test is being funded by the U.S. Department of Energy (DOE) through the Office of Fossil Energy and is being managed by the National Energy Technology Laboratory (NETL) as part of the DOE's Vision 21 program. An objective of the Vision 21 Program is to develop plants that would generate electricity with net efficiencies approaching 75 percent (with natural gas), while producing sulfur and nitrogen oxide emissions of less than 0.01 lb/million BTU. "Our Vision 21 program aims to integrate multiple advanced technologies in order to create systems that achieve breakthrough improvements in performance and cost. Fuel cell-turbine integration is a key part of that strategy," said NETL fuel cells product manager, Dr. Mark Williams.

Source: FuelCell Energy Press Release, August 16; Photo: FuelCell Energy Web Site

programs, and the Los Angeles Department of Water and Power plans to launch a "Trees for a Green L.A." program in October. In 1991 the American Public Power Association started a nationwide Tree Power initiative, and since then 165 of its member utilities have begun their own programs.

Los Angeles Times, July 15; Anaheim Public Utilities Web Site

Dairymen Urging Manure-to-Methane Projects

The Western United Dairymen (WUD), a group that represents about 1,100 dairies, is interested in a California State project that would offer funding for equipment to convert manure into methane. Several projects are already underway that use the converted manure to produce electricity; about 50 WUD members are interested in the new \$10 million program that would fund up to one-half of the cost of the equipment. In addition, Portland General Electric is constructing a small plant on a dairy farm in Washington, which is expected to produce 100 kW of electricity from the manure of about 500 animals.

Environmental News Network, August 15

Regional Office News

CRO, Midwest CHP Initiative Meeting

Gary Nowakowski, Chicago Regional Office (CRO), participated in the Midwest Combined Heat and Power (CHP) Initiative meeting held at the Gas Technology Institute on August 7. Four states (Michigan, Wisconsin, Illinois, and Indiana) gave detailed updates on the status of distributed generation and CHP in their state. Mr. Nowakowski led a marketing discussion and presented outlines on the role of state officials in distributed generation development and the creation of a "DER Marketing Plan" for the Midwest. One task of the

Midwest CHP Application Center is to develop a CHP baseline summary for the Midwest states. This information will be integrated into the Chicago Regional Office DER Marketing Plan as it is completed.

DOE News

OPT, Keyspan & NYSERDA Host DER Seminars

The Office of Power Technologies' Office of Distributed Energy Resources co-hosted two training seminars on August 13 and 14 with Keyspan Energy and the New York State Energy Research and Development Authority (NYSERDA) for local building code inspectors. The first seminar was held in Manhattan, New York, and the second took place on Long Island. The training sessions included introductions to fuel cells, microturbines, and advanced reciprocating engine systems as well as information on existing codes and standards dealing with interconnection and siting of the units. Presenters included Nag Patibandla, NYSERDA; Anne-Marie Borbely, Pacific Northwest National Laboratory; Bryan Fox, Capstone Turbine Corp.; Ken Krastins, Plug Power, Inc.; Gordon Gerber, Caterpillar, Inc.; and Pete Grzybowski, KeySpan. Similar workshops are being planned for other areas across the U.S.



Anne-Marie Borbely and Victor Vientos (Keyspan) standing in front of a Capstone Microturbine

*The LED lamps cut traffic signal power consumption by 80% in traffic signals compared to common incandescent bulbs. They cost approximately \$65 each.**

Calendar of Events

AUGUST 2001

21-22	Natural Gas/Renewable Energy Hybrids Workshop	Golden, CO	barbara_ferris@nrel.gov
21-24	International Energy Program Evaluation Conference	Salt Lake City, UT	608-835-6880; marymcc@tds.net
29-30	Integrated Energy Efficiency Conference and Facilities Management & Maintenance Expo	Cleveland, OH	www.aeecenter.org
29-Sep. 3	IEEC Integrated Energy Efficiency Congress	Cleveland, OH	Sponsored in part by FEMP; www.aeecenter.org

SEPTEMBER 2001

9-12	Microgeneration to Powerparks: Supply options and regulatory challenges	Troy, MI	Great Lakes Renewable Energy Assn. www.glrea.org
9-14	6th International Conference on Carbon Dioxide Utilization	Breckenridge, CO	Barbara Ferris, 303-275-3781; www.nrel.gov/iccduevi/
10-11	Energy Trading in New Economy	New Orleans, LA	www.eyeforenergy.com/eeo2
10-12	Electricity Transmission 2001	Arlington, VA	www.iir-ny.com
10-12	Interconnecting DG to Utility Distribution Systems	Madison, WI	University of Wisconsin-Madison, College of Engineering (800) 462-0876
10-13	2001 Environmental Innovations Summit	Washington, DC	dunn@performanceweb.org, 703-519-6270
11-13	7th Grove Fuel Cell Symposium	London, UK	www.grovetfuelcell.com
16-19	NASEO Annual Meeting	Portland, ME	www.naseo.org/events/annual/default.htm
17-21	5 th Biomass Confer. of the Americas	Orlando, FL	www.fsec.ucf.edu/bioam ; dee_scheaffer@nrel.gov
20-21	ISO Technology Conference—Building the Electric Energy Industry Market	Washington, DC	www.isotechcon.com
20-21	Energy Investors Summit	San Francisco, CA	www.srinstitute.com/cr216
24-25	Distributed Generation Conference	Denver, CO	www.cbinet.com
24-26	Powering the Future: New Strategies & Solutions for Deploying DP in Mktplace	Chicago, IL	www.intertechusa.com
24-26	Conservation or Crisis: A Northwest Choice	Portland, OR	www.bpa.gov/Energy/N/news/crisis.shtml
30 – Oct. 5	UPEX'01: The Photovoltaic Experience Conference & Expo	Sacramento, CA	Jjudd@ttcorp.com; hosted by Sacramento Municipal Utility District; includes distributed energy technologies workshop

OCTOBER 2001

2-3	Midwest Electrical Conf. and Expo	Indianapolis, IN	www.electricleagueindiana.org/expo2001/index.htm
4-5	Distributed Generation Seminar	Boston, MA	www.aeecenter.org
7-10	APPA Telecommunications Wkshp.	Seattle, WA	www.appanet.org ; Bethany Luna (202) 467-2993
10-11	Fuel Cell Dynamics: Reality, Not Hype	New York, NY	www.alliedworld.com
14-17	National Center for Photovoltaics Program Review	Lakewood, CO	barbara_ferris@nrel.gov, 303-275-3781
16-18	IEEE Distributed Resources and Electric Power Systems Interconnection Working Group (P1547) Meeting	Las Vegas, NV	http://grouper.ieee.org/groups/scc21/1547/

LEDs are semiconductor chips that produce their own color from spectral wavelengths. The LEDs run on 17 watts and are expected to last 10-15 years. *

Calendar of Events

OCTOBER 2001

16-17	CHP Roadmap Meeting	Baltimore, MD	John Jimison, johnj@bcjlaw.com
16-17	Two-day Seminar on Materials for Corrosive Applications	Wilmington, DE	Rick Sutherlin, (541) 967-6924
16-17	Energy & Environmental Technologies Conference	Atlantic City, NJ	www.eetech.org
22-23	Fuel Cells for Portable Devices	San Francisco, CA	www.f-cellsnetwork.com/NA-1660-01
24-26	World Energy Engineering Congress	Atlanta, GA	www.agcc.org (includes CHP Expo www.aeecenter.org)
24-27	Excellence in Building 2001	Orlando, FL	www.eeba.org/conference
28-Nov. 2	2001 IEEE/PES Transmission and Distribution Conference and Expo	Atlanta, GA	www.ieeeet-d.org
29-30	Reliability-Focused Energy Efficiency Conference: Lessons Learned in 2001	Berkeley, CA	www.aceee.org

NOVEMBER 2001

1-2	3rd Int'l Symposium on DG	San Diego, CA	www.cader.org
1-4	World Congress for Hydrogen Economy	Denver, CO	www.hydrogennow.org
6	NAESCO DG Conference	Miami, FL	www.naesco.org/conference.htm
7-9	NAESCO 18th Annual Conference	Miami, FL	www.naesco.org/conference.htm
8-9	DG Strategies & On-site Power Applications for Fuel Cells	Atlanta, GA	www.dist-gen.com
11-14	113th NARUC Annual Convention	Philadelphia, PA	www.naruc.org
12-14	Fuel Cells for Stationary, Automotive and Portable Apps.	Fort Lauderdale, FL	Florida Educational Seminars, (561) 367-0193
27-28	Business for Fuel Cells for Stationary Applications	Brussels, Belgium	www.eyeforfuelcells.com
28-30	The Power to Choose: Creating and Expanded DER Industry	Washington, DC	cs@energeticsinc.com

DECEMBER 2001

3-4	4th Business Case for Opportunity and Investment in Fuel Cells	Miami, FL	www.cbinet.com
5-7	4th Annual Interactive Energy Conf.	Houston, TX	www.interactiveenergy.com/2001
11-13	Power-Gen International	Las Vegas, NV	www.pennwellevents.com

JANUARY 2002

14-15	Material Technologies for Fuel Cells and Power Electronics	Cocoa Beach, FL	www.ceramics.org/meetings/ECD2002/expo.asp
28-Feb.1	Distributed Power Program Annual Review Meeting	Arlington, VA	kimberly_taylor@nrel.gov
29-Feb.1	Reducing Your Energy Costs Conference and Exhibit	New Orleans, LA	Stuart Steller, 781-939-2411, s.steller@cbinet.com

FEBRUARY 2002

27-Mar 1	DistribuTECH	Miami Beach, FL	www.pennwellevents.com
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MARCH 2002

17-21	EPRI's 7th Distributed Resources Conference and Expo	Dallas, TX	lgoldie@epri.com
19-21	Electric Power 2002	St. Louis, MO	www.electricpowerexpo.com